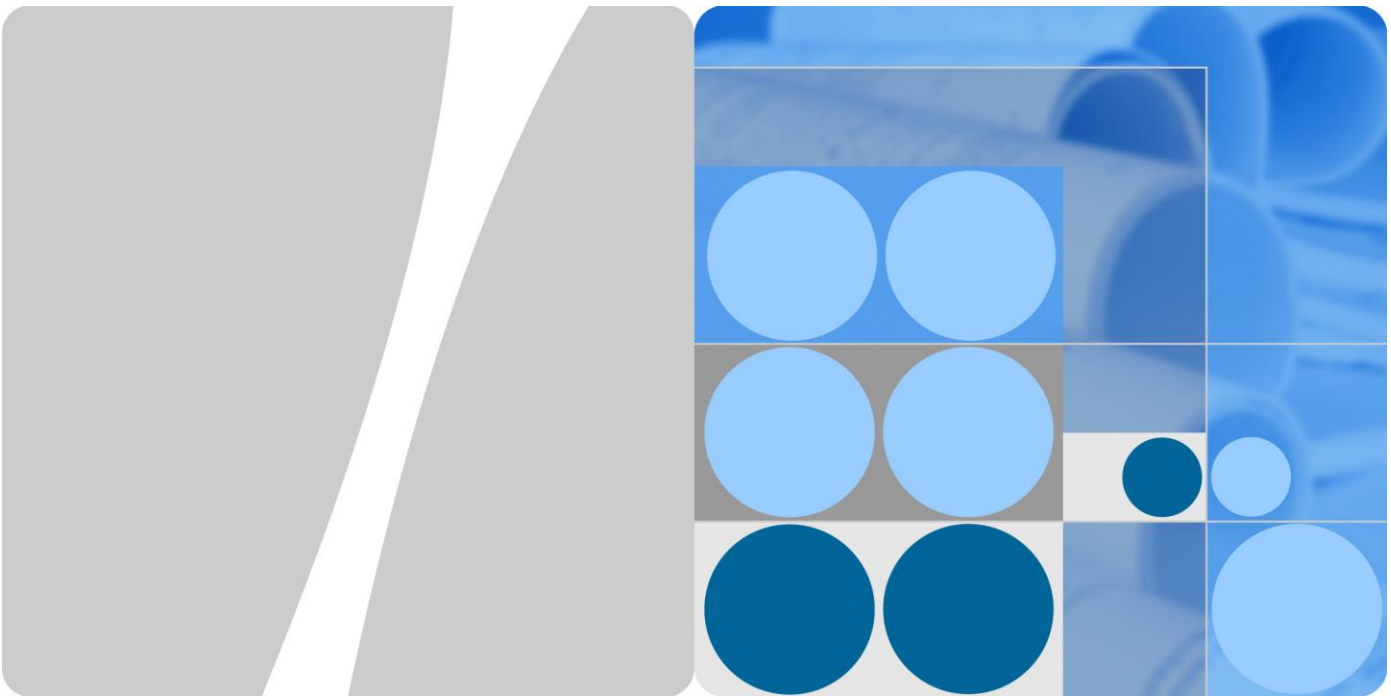

NetCol5000-A Air Cooled In-row Precision Air Conditioner
V100R001
Product Description

Issue 02

Date 2014-07-03

HUAWEI TECHNOLOGIES CO., LTD.

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About This Document

Purpose

This document applies to the following NetCol5000-A series air-cooled in-row precision air conditioner:

- NetCol5000-A035: 35 kW air-cooled in-row precision air conditioner
- NetCol5000-A025: 25 kW air-cooled in-row precision air conditioner
- NetCol5000-A: Both 35 kW and 25 kW air-cooled in-row precision air conditioner

This document describes the NetCol5000-A, a in-row precision air conditioner, in terms of its model description, positioning, benefits, composition, typical application scenarios, working conditions and technical specifications. This document is convenient to the audiences to master the use of NetCol5000-A.

Intended Audience

This document is intended for:

- Sales personnel
- Technical support personnel
- System engineers

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

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Symbol	Description
	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
	Calls attention to important information, best practices and tips. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Issue 02 (2014-07-03)

Some parameters are added in section 4.2.

Issue 01 (2014-03-11)

This issue is the first official release.

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1 Model Description

Figure 1-1 shows the naming rule for the NetCol5000-A series products.

Figure 1-1 Naming rule for the NetCol5000-A

NetCol	5000	-	A	035	H	5	1	2	D	2	E	1	2	0	E	1
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

1 Data Center Precision Air Conditioner

2 Model Range

2000 - In-Cabinet Precision Air Conditioner
5000 - In-Row Precision Air Conditioner
8000 - In-Room Precision Air Conditioner

3 Hyphen

4 System Type

A - Air Cooled
W- Water Cooled
G - Glycol Cooled
C- Chilled Water
F - Free Cooling
P - Air Cooled + Chilled Water
Q - Water Cooled + Chilled Water
R - Glycol Cooled + Chilled Water
T - Air Cooled + Loop Thermal Siphon

5 Cooling Capacity

035 - Cooling Capacity 35kW
1D5 - Cooling Capacity 1.5kW

6 Air Discharge

U - Up Flow
D - Down Flow
H - Horizontal Flow

7 Power Supply

M- 380-415V,3PH,50Hz
N- 208-230V,3PH,60Hz
P- 220-240V,3PH,50Hz
Q- 380V,3PH,60Hz
R- 460-480V,3PH,60Hz
S- 220-240V,1PH,50Hz
T- 208-230V,1PH,60Hz
U- 277V,1PH,60Hz
D- 48VDC
1- 200-277V,1PH,50/60Hz
2- 200-240V,1PH,50/60Hz
3- 200-240V,3PH,50/60Hz
4- 380-415V,3PH,50/60Hz
5- 380-480V,3PH,50/60Hz

8 Cooling System

1- R410A Single System
2- R410A Dual System
3- R407C Single System
4- R407C Dual System
5- R22 Single System
6- R22 Dual System
7- R134A Single System
8- R134A Dual System
A- Chilled Water with Three Way Valve
B- Chilled Water with Two Way Valve
C- Others

9 Fan Type

1- AC Fan
2- EC Fan
3- DC Fan

10 Compressor Type

0- No Compressor
N- ON-OFF
D- DC Inverter

11 Filter Grade

0- None
1- G3
2- G4
3- F5

12 Humidifier

0- None
R- Infrared Humidifier
E- Electrode Humidifier

13 Re-Heating

0- None
1- Electric Heating 1 Level
2- Electric Heating 2 Level

14 Monitoring

0- No Card
1- Web Only
2- 485 Only
3-Web&485

15 Sensors

0- None
S- Smoke Temperature
F- High Temperature
B-Smoke & High Temperature

16 Packaging

D- Domestic
E- Export

17 Order Special Features

0- None
1- Condensate Pump

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2 Positioning

With rapid development of high-density data centers, traditional room-level temperature control products are facing severe challenges in heat dissipation, energy conservation, and environmental friendliness. To meet customer's increasing requirements for new services, Huawei develops NetCol5000-A, a row-level temperature control system.

The NetCol5000-A solves data center problems caused by high density, such as, heat dissipating issues, high power consumption for cooling, and high power usage effectiveness (PUE). In addition, the NetCol5000-A is compatible with existing standard cabinets and supports cabinet combination.

The NetCol5000-A is a precision environment control system for equipment rooms and data centers. It provides an optimal operating environment for precision equipment, such as sensitive equipment, industrial equipment, communications equipment, and computers.

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3 Benefits

The NetCol5000-A features efficient cooling, effective energy saving, high reliability and adaptability, and provides multiple power modes, high compatibility, and intelligent monitoring, and easy maintenance.

Efficient Cooling

- The highly efficient industrial DC frequency-converting scroll compressor adopts a high-condensing temperature design for T3 working condition and provides cooling air on demand, which greatly reduces power consumption.
- Electronic commutation (EC) fans draw in air with stepless speed adjustment.
- The row-level cooling mode allows cooling air to be provided on demand. The air supply temperature and direction can be precisely controlled to reduce power consumption.
- The NetCol5000-A with optimal configurations adopts highly efficient refrigeration coils and pipes to ensure efficient heat exchange.

Effective Energy Saving

- The frequency-converting temperature control algorithm ensures quick response to load changes and precise temperature control.
- Fans support soft start, which lowers the start current and prevents shock on the power grid and other equipment connecting to the power grid.
- NetCol5000-As are connected over a controller area network (CAN) bus to achieve group control, which efficiently conserves energy.

High Reliability

The DC frequency-converting technology greatly reduces NetCol5000-A startup and shutdown times, reducing component failures and extending the service time of key components.

High Adaptability

- By integrating a frequency-converting compressor with a high pressure ratio and using the control logic algorithm, the NetCol5000-A applies to T1 and T3 working conditions.
- The NetCol5000-A can work outdoors at a maximum temperature of 55 ℃.
- The NetCol5000-A can work outdoors at a minimum temperature of -20 ℃ . (It can reach -40 ℃ by using low-temperature components.)

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Multiple Power Modes

The NetCol5000-A supports a power supply of 380 V to 480 V, three phase, and a frequency of 50 Hz or 60 Hz. It therefore applies to various scenarios in different countries.

High Compatibility

- Structure compatibility: The NetCol5000-A can be combined with cabinets that are 2 m or 2.2 m high and 1.1 m or 1.2 m wide in a data center.
- Function compatibility:
  - The NetCol5000-A supports overhead or underfloor piping.
  - Optional components, such as heater, humidifier, condensate water pump, and water sensor, are offered.

Intelligent Monitoring

- You can monitor and configure the NetCol5000-A on the terminal.
- The NetCol5000-A has a 7-inch touchscreen that displays the system operating mode and status and allows you to set parameters.

Easy Maintenance

- You can perform remote maintenance and configuration over communications ports.
- The compressor connects to pipes with Rotalock connections, and the dry filter connects to pipes with threaded connection, which avoids the soldering process.

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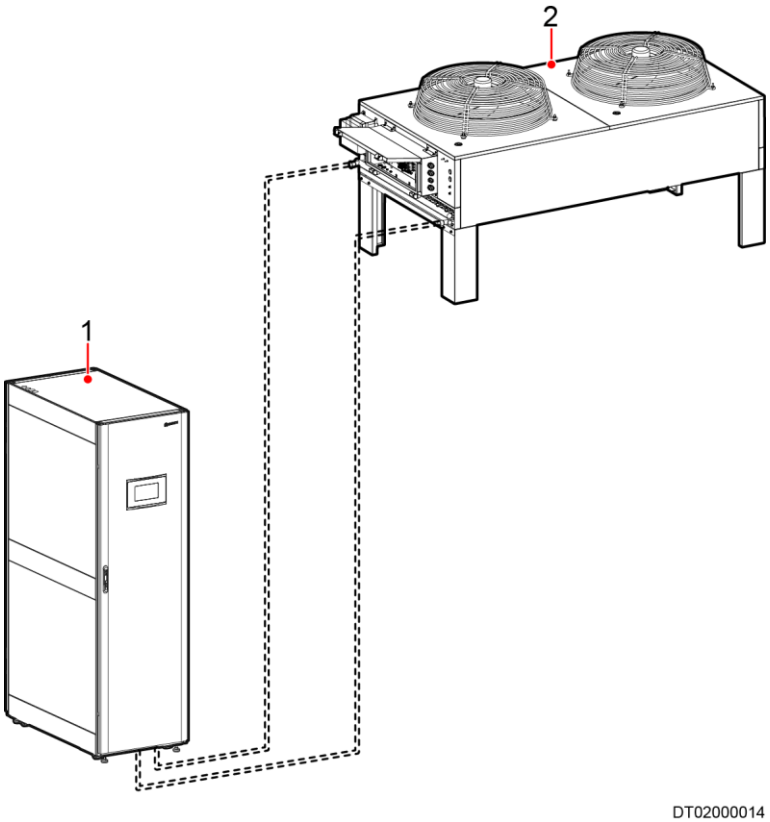
4 Indoor Unit Composition

4.1 Overview

The NetCol5000-A operates as follows: Fans absorb indoor hot air that then moves to the evaporator with heat transmitted to the refrigerant. The refrigerant is exhausted to the outdoor unit using the compressor, releasing heat to the outdoor environment. The indoor unit and outdoor condenser are connected and circulate using refrigerant in a sealing manner.

The NetCol5000-A consists of an indoor unit and an outdoor unit (the NetCol500-A072 is used as an example), as shown in Figure 4-1.

Figure 4-1 Composition of the NetCol



(1) NetCol5000-A (2) NetCol500-A072

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4.2 Key Components

4.2.1 Indoor Unit

Appearance

Figure 4-2 shows the appearance of an indoor unit.

Figure 4-2 Appearance

The indoor unit of the NetCol5000-A has three dimensions, as described in Table 4-1.

Table 4-1 Dimensions

Dimensions	H x W x H	Capacity Expansion Mode
Standard configuration	2000 mm x 600 mm x 1100 mm	/
Expansion mode 1	2000 mm x 600 mm x 1200 mm	Installing an enclosure frame
Expansion mode 2	2200 mm x 600 mm x 1100 mm	Installing an upper frame

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Composition

The indoor unit consists of a compressor, EC fan, evaporator, air filter, electric heater (optional), electrode humidifier (optional), condensate pump (optional), and low-temperature component (optional).

- Compressor

  The indoor unit uses the advanced DC frequency-converting scroll compressor to adapt to broad working conditions. It features good environment adaptability, stepless frequency adjustment, precise temperature control, energy conservation, high reliability, low noise, long service time, and easy installation. The indoor unit uses R410A refrigerant, which is environmentally friendly.

- EC fan

  The indoor curves EC retroverted centrifugal fan from a high-end brand conserves 40% more energy than common fans and features a redundancy design, high reliability, and long service time.

- Evaporator

  The highly efficient finned-tube evaporator is made of threaded copper tubes and a hydrogen-plated layer and adopts the computational fluid dynamics (CFD) to improve heat exchange efficiency.

- Air filter

  The G4 air filter meets requirements for equipment room cleanness.

- Electric heater

  The positive temperature coefficient (PTC) heater automatically adjusts heating capacity and provides multiple protection mechanisms to ensure operating security and reliability. The electric heater features quick start, large heating capacity, and even heating.

- Electrode humidifier

  The electrode humidifier provides stepless adjustment of humidification capacity and precise control of humidity in equipment room.

- Condensate pump

  The condensate pump uses materials resistant to high temperatures to ensure that the condensate water and hot water from the humidifier are exhausted smoothly. The pump lift is 3.5 m. Two floats are used to improve reliability.

- Low-temperature component

  Low-temperature component use intelligent condensing pressure control system to ensure the air conditioner working under -40 ℃. It use pressure stabilizer from a high-end brand, and modularity design makes installation easy.

4.2.2 Outdoor Unit

Model Description

Figure 4-3 shows the naming rule for the outdoor unit.

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Figure 4-3 Naming rule for the outdoor unit

NetCol	500	-	A	072	R	C	1	1	E	X
1	2	3	4	5	6	7	8	9	10	11

1 Data Center Precision Air Conditioner

2 Number Series

500 - Outdoor Unit

3 Hyphen

4 System Type

A - Air Cooled

5 Heat Rejection Capacity

032 - Heat Rejection Capacity 32kW
038 - Heat Rejection Capacity 38kW
072 - Heat Rejection Capacity 72kW

6 Power Supply

M - 380-415V,3PH,50Hz
N - 208-230V,3PH,60Hz
P - 220-240V,3PH,50Hz
Q - 380V,3PH,60Hz
R - 460-480V,3PH,60Hz
S - 220-240V,1PH,50Hz
T - 208-230V,1PH,60Hz
U - 277V,1PH,60Hz
1 - 200-277V,1PH,50/60Hz
2 - 200-240V,1PH,50/60Hz
3 - 200-240V,3PH,50/60Hz
4 - 380-415V,3PH,50/60Hz
5 - 380-480V,3PH,50/60Hz

7 Climate

C - Common Ambient Temperature
L - Low Ambient Temperature

8 Cooling System

1 - R410A Single System
2 - R410A Dual System
3 - R407C Single System
4 - R407C Dual System
5 - R22 Single System
6 - R22 Dual System
7 - R134A Single System
8 - R134A Dual System
9 - Others

9 Fan Type

1 - AC Fan
2 - EC Fan
3 - DC Fan

10 Packaging

D - Domestic
E - Export

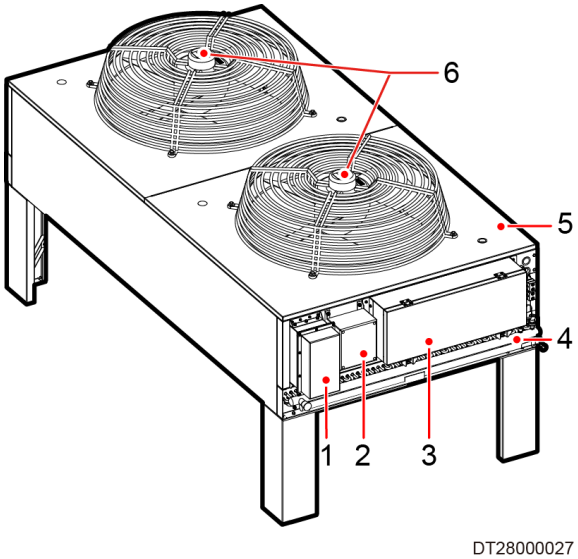
11 Order Special Features

0 - None
X - Non-Standard Feature

Appearance

A NetCol500 consists of a transformer, fan drive, a controller, a condenser, a rack, and fans, as shown in Figure 4-4. Table 4-2 shows the NetCol500 configuration.

Figure 4-4 NetCol500 outdoor unit composition



(1) Transformer (2) Fan drive (3) Controller

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(4) Condenser (5) Rack (6) Fans

Table 4-2 NetCol500 configuration

Model	Model Class	Composition
NetCol500-A032	NetCol500-A0324	Fan drive, controller, condenser, rack, a fan
NetCol500-A038	NetCol500-A0384	Fan drive, controller, condenser, rack, a fan
	NetCol500-A038R	Transformer, fan drive, controller, condenser, rack, a fan
NetCol500-A072	NetCol500-A0724	Fan drive, controller, condenser, rack, two fans
	NetCol500-A072R	Transformer, fan drive, controller, condenser, rack, two fans

Technical Parameters

Figure 4-5 shows the dimensions of the NetCol500 series products.

Figure 4-5 Dimensions of the NetCol500 series products

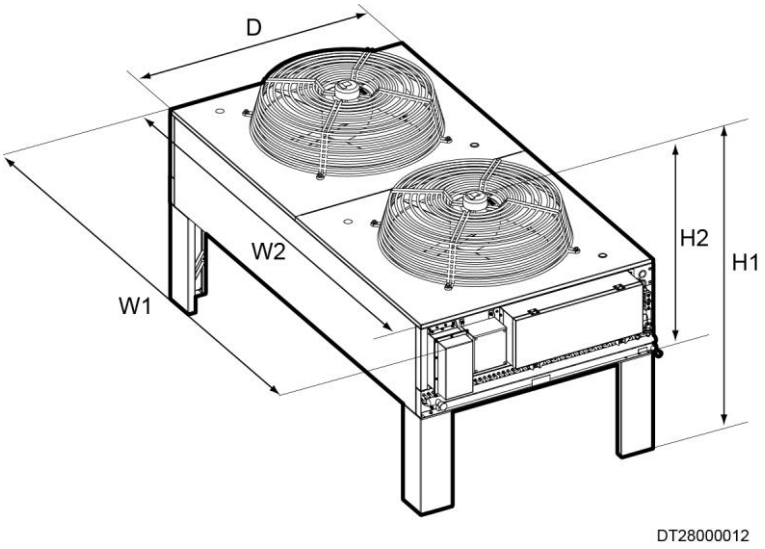

Table 4-3 and Table 4-4 list the NetCol500 series products technical parameters.

Table 4-3 Technical specifications of the NetCol500-A038 (032) series products

Item	NetCol500-A0324	NetCol500-A0384	NetCol500-A038R
Power supply	380–415 V 3 Ph 50 Hz or 60 Hz		440–480 V 3 Ph 60 Hz
Voltage tolerance [a]	Rated voltage ±10%		Rated voltage ±10%
Frequency	Rated frequency ±3 Hz		Rated frequency ±3 Hz

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Item	NetCol500-A0324	NetCol500-A0384	NetCol500-A038R
tolerance			
Maximum current of the outdoor unit	2.5 A		2 A
Air flow of fans	12000 m^3/h		12000 m^3/h
Number of fans	1		1
H1 x W1 (W2) x D (mm)	1160 × 1350 (1220) × 1094		1160 × 1370 (1220) × 1094
H2 x W1 (W2) x D (mm)	714 × 1350 (1220) × 1094		714 × 1370 (1220) × 1094
Weight	110 kg		110 kg
Certification	SASO, SONCAP, CE, RoHS, REACH		RoHS, REACH
Operating temperature [b]	–20 ℃ to +45 ℃	–20 ℃ to +55 ℃	–20 ℃ to +55 ℃
Storage temperature	–40 ℃ to +70 ℃		
Storage humidity	5%–95% RH (non-condensing)		
Altitude	0–1000 m. If the altitude exceeds 1000 m, the NetCol500 power is derated Note For the detailed derated data, see the *NetCol Precision Air Conditioner User Manual* that were shipped to the site in a random accessories package.		
a: Recommended to add the voltage regulator in the front end if the power exceeds this range. Otherwise, air conditioner will generate frequency alarms and cannot run. b: The specific operating temperature need to match with the indoor unit.			

Table 4-4 Technical specifications of the NetCol500-A072 (088) series products

Item	NetCol500-A0724	NetCol500-A072R
Power supply	380–415V 3 Ph 50 Hz or 60 Hz	440–480 V 3Ph 60 Hz
Voltage tolerance [a]	Rated voltage: ±10%	Rated voltage: ±10%
Frequency tolerance	Rated frequency ±3 Hz	Rated frequency ±3 Hz

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Item	NetCol500-A0724	NetCol500-A072R
Maximum current of the outdoor unit	4.5 A	4 A
Air flow of fans	26000 m^3/h	26000 m^3/h
Number of fans	2	2
H1 x W1 (W2) x D (mm)	1100 × 2180 (2050) × 1094	1100 × 2200 (2050) × 1094
H2 x W1 (W2) x D (mm)	654 × 2180 (2050) × 1094	654 × 2200 (2050) × 1094
Weight	150 kg	150 kg
Certification	SASO, SONCAP, CE, RoHS, REACH	RoHS, REACH
Operating temperature	–20 ℃ to +55 ℃	
Storage temperature	–40 ℃ to +70 ℃	
Storage humidity	5%–95% RH (non-condensing)	
Altitude	0–1000 m. If the altitude exceeds 1000 m, the NetCol500 power is derated Note For the detailed derated data, see the *NetCol Precision Air Conditioner User Manual* that were shipped to the site in a random accessories package.	
a: Recommended to add the voltage regulator in the front end if the power exceeds this range. Otherwise, air conditioner will generate frequency alarms and cannot run. b: The specific operating temperature need to match with the indoor unit.		

4.2.3 Controller

The controller consists of an LCD, main control board, compressor compressor drive, humidification control board, surge protection filter box, temperature and humidity connection board.

LCD

The 7-inch true color-sensitive LCD with thin film transistor (TFT) offers a user-friendly interface for you to perform query, settings, monitoring, and maintenance.

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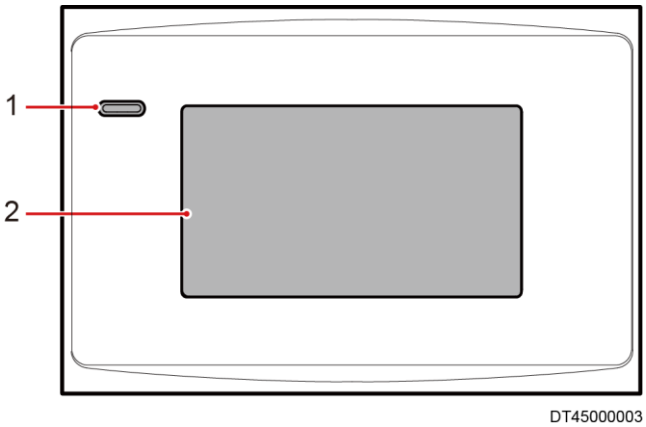
Figure 4-6 shows an LCD.

Figure 4-6 LCD



(1) Indicator (2) Screen

Functions

- The controller logically controls the temperatures and humidity for components inside a single air conditioner.
- The LCD on the controller allows you to set the parameters of the air conditioner and query the status information.
- When multiple air conditioners work cooperatively, the controller optimally distributes the heat load, greatly lowers the power consumption, provides backup, and improves the reliability.
- You can use the remote control system purchased from Huawei to realize monitoring and managing one or more air conditioners.

Features

The controller has the following features:

- The controller provides a touchscreen with a user-friendly interface.
- The controller controls the air conditioner precisely and responds quickly.
- The multi-level password protection prevents misoperations.
- The controller provides multiple protection functions, such as chilled water valve exception feedback, abnormal power-off self-recovery, and water leakage detection, ensuring system reliability.
- The LCD on the controller displays the operating status and duration of the air conditioner components in real time.
- The fault diagnosis system automatically displays the information of the current fault, which facilitates the maintenance.
- The air conditioner provides abundant external ports such as RS232 port, RS485 port, fast Ethernet (FE) port, and USB port that are protected by a security mechanism.

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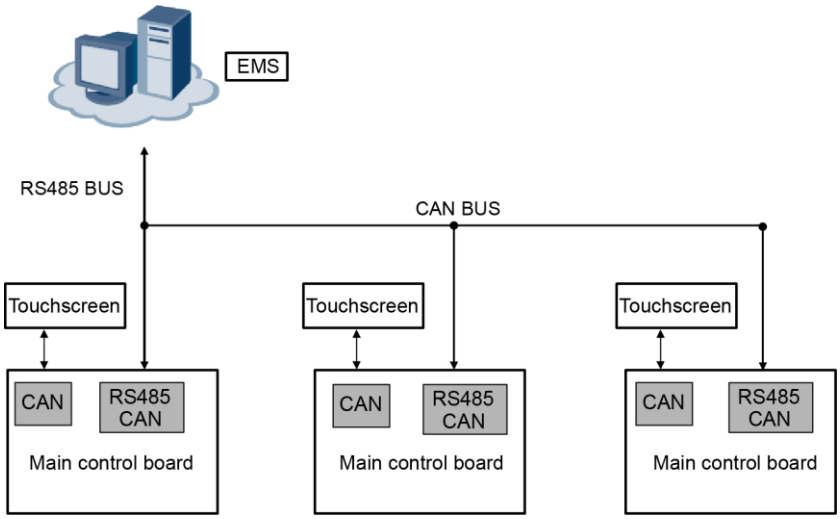
4.2.4 Monitoring System

The monitoring system provides logic control, data collection, control demand delivering, alarm reporting, data storage, user right management, and group control. You can connect your monitoring system to the monitoring system of the NetCol5000-A over a northbound port (RS485 or RS232) to perform remote management.

Figure 4-7 shows the network diagram of the NetCol5000-A monitoring system.

- The main control boards in the NetCol5000-A connect to each other over RS485 ports.
- A maximum of 32 NetCol5000-As can be connected in group control mode. You can specify a NetCol5000-A as the master and connect the master to the monitoring network diagram.

Figure 4-7 Group control diagram



4.2.5 Low-temperature component

Functions

The condensate temperature is might lower than the safety running system of the compressor in natural heat dissipation, when the environment temperature is lower than the specified running temperature. The low-temperature component is used to increase the reliability of the whole system.

The schematics diagram of low-temperature component, as show in Figure 4-8.

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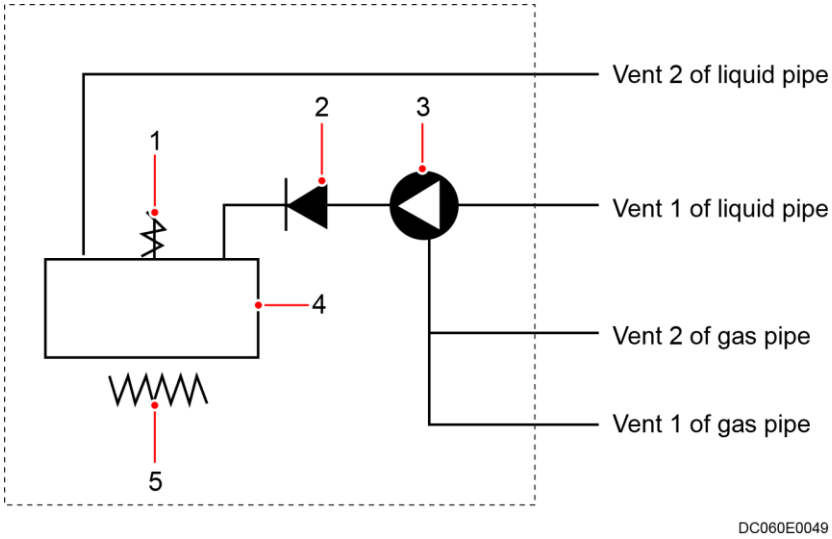
Figure 4-8 The schematics diagram of low-temperature component



(1) Safety valve (2) Check valve (3) Regulator valve

(4) Reservoir (5) Electric heater

Features

Low-temperature component use intelligent condensing pressure control system to ensure the air conditioner working under -40 ℃.

- When detecting the outdoor condensing pressure is too low, the regulator valve will automatically open to bypass hot gas to the reservoir, the condensing pressure is maintained to safe and reliable range.
- When detecting the condensing pressure is higher than set value, the regulator valve will automatically close.

Installation Layout

Precision air conditioner components including low-temperature component are shown in Figure 4-9.

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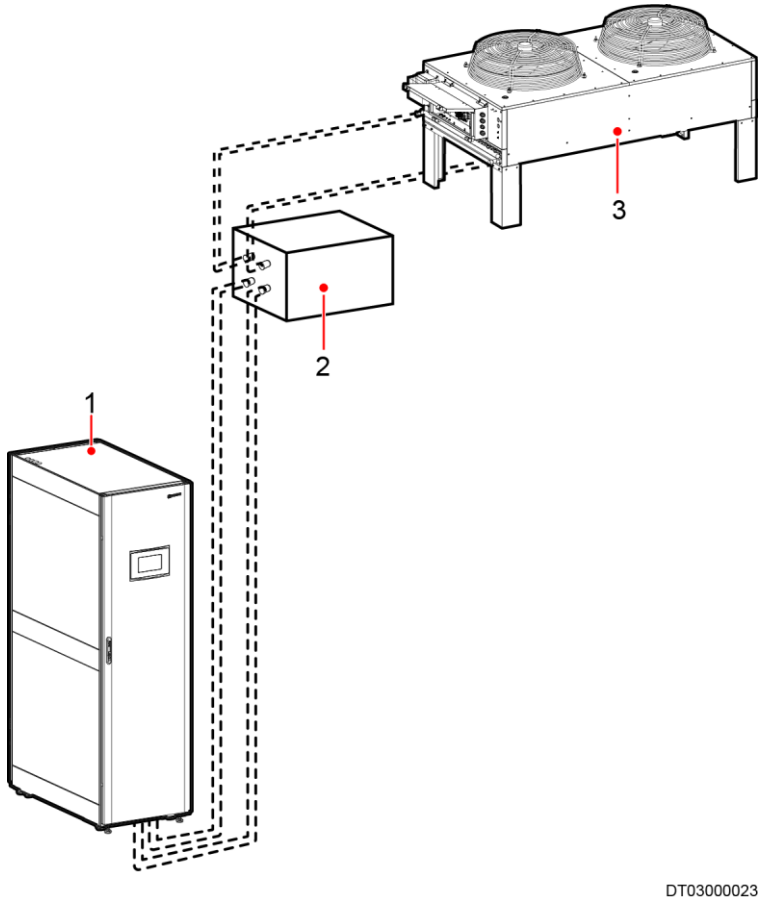
Figure 4-9 Precision air conditioner components including low-temperature component



(1) NetCol5000-A (2) Low-temperature component (3) NetCol500-A

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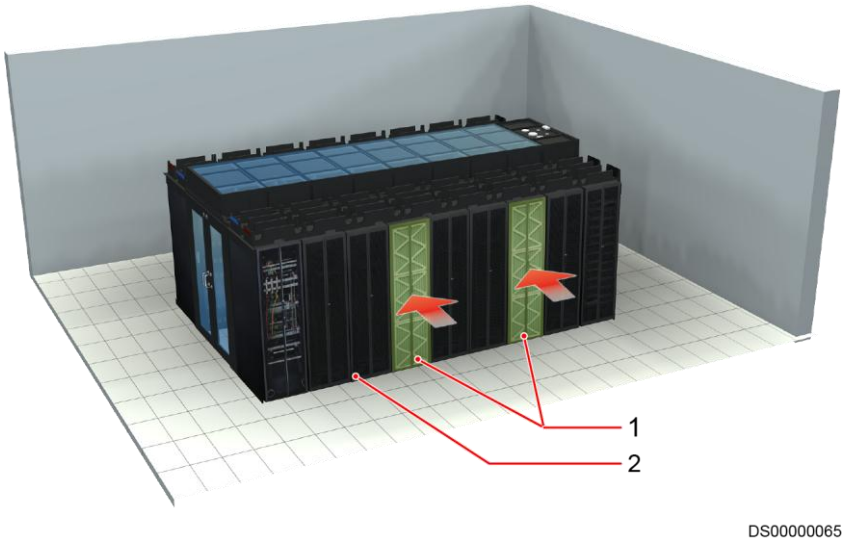
5 Typical Application Scenarios

The NetCol5000-A applies to container data centers and modular data centers with cold-aisle containment and hot-aisle containment.

Figure 5-1 Modular data center with cold-aisle containment



(1) NetCol5000-A (2) Equipment

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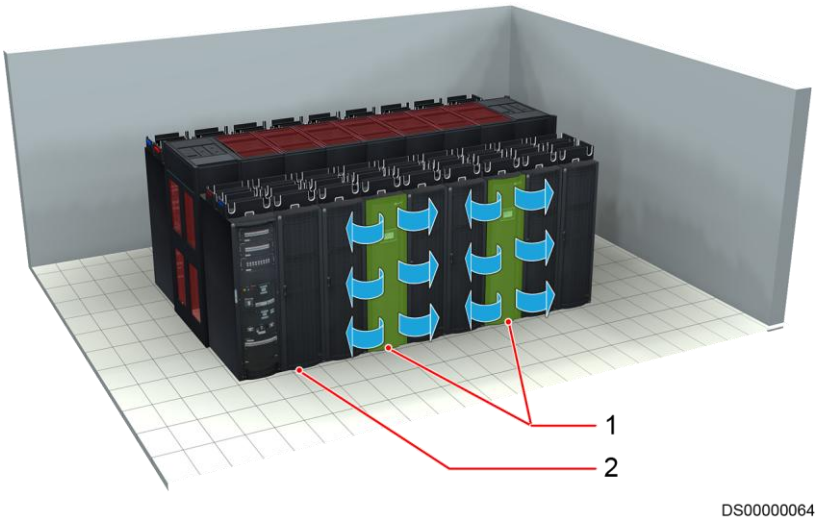
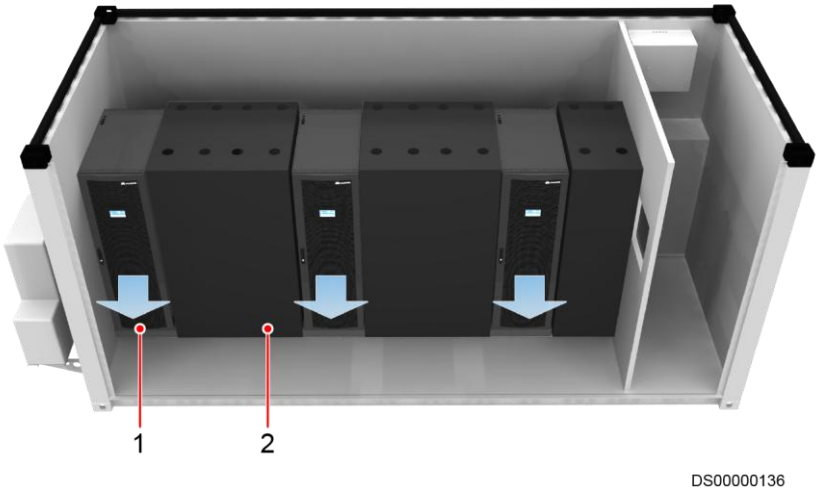
Figure 5-2 Modular data center with hot-aisle containment



(1) NetCol5000-A (2) Equipment

Figure 5-3 Container data center



(1) NetCol5000-A (2) Equipment

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6 Working Conditions

Environmental specifications

Table 6-1 lists the environmental specifications of the NetCol5000-A.

Table 6-1 Environmental specifications

Item	Specifications
Indoor cooling temperature	18 ℃ to 45 ℃
Operating humidity	20% RH to 80% RH
Storage temperature	-40 ℃ to +70 ℃
Storage humidity	5% RH to 95% RH (non-condensing)
Altitude[a]	0 to 1000 m (If the altitude is greater than 1000 m, the cooling performance deteriorates. Table 6-2 describes the derating coefficients.)
Protection level	• Indoor unit: IP20 • Outdoor unit: IPX5

Table 6-2 Derating coefficients

Altitude	0	1000	1500	2000	2500	3000	3500	4000
Density coefficient	1	0.887	0.835	0.785	0.737	0.692	0.649	0.608
Air volume coefficient	1	0.887	0.835	0.785	0.737	0.692	0.649	0.608
Cooling capacity coefficient	1	0.940	0.909	0.878	0.846	0.815	0.784	0.753
The sensible heat ratio is all 100%.								

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Installation requirements

Table 6-3 describes the installation requirements of NetCol5000-A.

Table 6-3 Installation requirements

Name	Specifications
Door	Width ≥ 0.9 m; height ≥ 2.3 m.
Underfloor	Load bearing capacity ≥ 350 kg/m^2; height of underfloor ≥ 250 mm.
Length of refrigerant pipes	≤ 60 m
Vertical distance between indoor unit and outdoor unit	• If the outdoor unit is placed higher than the indoor unit, the maximum vertical distance between them is 20 m. • If the indoor unit is placed higher than the outdoor unit, the maximum vertical distance between them is 5 m.
Water Supply	• Water pressure ranges from 0.1 MPa to 0.7 MPa. • Water temperature ranges from 1 ℃ to 40 ℃. • Transient flow is greater than or equal to 0.6 L/min. • The quality of supplied water must meet the requirements listed in Table 6-5.
Drain Water	• The upper drainage height of the condensate pump should be 3.5 meters at most. • Self-drainpipe inner diameter ≥ 19 mm, self-drainage leveling tube length ≤ 2 m. • The hose can be used in a environment whose temperature is higher than 85 ℃. (The requirement is only for the units with a humidifier.)
Power requirements	Earth leakage circuit breakers are not recommended for mains. If earth leakage circuit breakers are required by the customer or according to local regulations, use the residual current circuit breaker (RCCB) that is not sensitive to the single-phase DC pulse and transient current pulse.
Note: If the requirements are not met, contact Huawei technical support for an optimized plan.	

Ports

Table 6-4 describes the ports on the NetCol5000-A.

Table 6-4 Ports

Port	Description
Refrigerant liquid pipe	Flaring copper pipe inner diameter: 5/8 inch, soldered.

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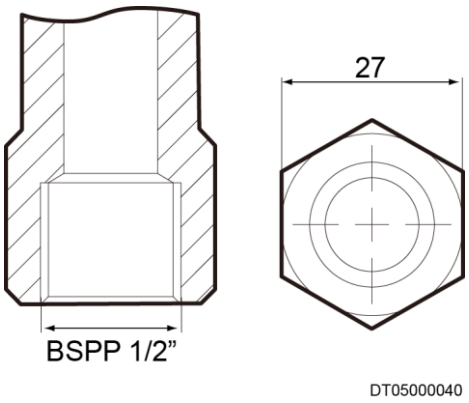
Port	Description
Refrigerant gas pipe	Flaring copper pipe inner diameter: 7/8 inch, soldered.
Pump drainpipe	Reserved: 1/2 inch BSPP (British Standard Pipe Parallel) screw thread connector, as shown in Figure 6-1.
Humidifier water supply pipe	Reserved: 1/2 inch BSPP screw thread connector, as shown in Figure 6-1.
Condensate self-drainpipe	Reserved: 1/2 inch BSPP screw thread connector, as shown in Figure 6-1.
Strong electricity cable connection port	Inner diameter: 43 mm (inside diameter of the rubber ring).
Weak electricity cable connection port	Inner diameter: 19 mm (inside diameter of the rubber ring).
Installation mode	Installed on a concrete floor or an raised floor.
Pipe and cable routing	Overhead or underfloor piping and cabling bottom. (Self-drainpipe only supports underfloor piping.)

Figure 6-1 Port for water pipe (unit: mm)



NOTE

BSPP 1/2 inch: Large diameter: 20.955 mm; medium diameter: 19.793 mm; small diameter: 18.631 mm; medium diameter tolerance: 0–0.142 mm; small diameter tolerance: 0–0.541 mm.

Water Quality Requirements

NOTICE

If the inlet water contains large granules, install a water filtering device at the inlet port to prevent pipe blockage.

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Table 6-5 describes NetCol5000-A water quality requirements.

Table 6-5 Water quality requirements

Name	Specifications	Unit
Hydrogen ion	7–8.5	pH
Conductivity rate at 20°C (σ_{20})[a]	300–1250	μs/cm
a: When σ_{20} is less than 300 μs/cm, the first vapor exhausting duration of the humidifier is long; when σ_{20} greater than 1250 μs/cm, the humidifier service life is affected.		

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7 Technical Specifications

Table 7-1 General Parameters

Item	NetCol5000-A035	NetCol5000-A025
Power supply[a]	380–480 V 50/60 Hz 3W+PE	380–480 V 50/60 Hz 3W+PE
Voltage tolerance[b]	Rated voltage ±10%	Rated voltage ±10%
Frequency tolerance	Rated frequency ±3 Hz	Rated frequency ±3 Hz
Cooling Mode	Air cooled	Air cooled
Refrigerant	R410A	R410A
Cooling capacity[c]	35 kW	25 kW
Air supply mode	Horizontal air supply	Horizontal air supply
Airflow	6500 m^3/h	4600 m^3/h
Air filter	G4 filter	G4 filter
Dimensions (H x D x W)[d]	2000 mm x 600 mm x 1100 mm	2000 mm x 600 mm x 1100 mm

- a: The compatible power systems include 380 V 50 Hz or 60 Hz, 400 V 50/60 Hz, 415 V 50 Hz or 60 Hz, 440 V 60 Hz, 460 V 60 Hz, and 480 V 60 Hz. Voltage jumpers are used.
- b: Recommended to add a voltage regulator in the front end if the power exceeds this range. Otherwise, air conditioner will generate frequency alarms and cannot run.
- c: Indoor dry-bulb temperature: 37.8 ℃. Wet-bulb temperature: 20.8 ℃. Condensing temperature: 45 ℃.
- d: Frames can be used to expand the depth to 1200 mm, while top supports can be used to expand the height to 2200 mm.

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NOTICE

- When the total load of servers is less than 30% load of a single air conditioner, air conditioners that have heating and humidification function or have partial heating and humidification function are recommended.
- When the total load of servers is less than 10% load of a single air conditioner, the humidity might be relatively high. In this case, contact Huawei technical support.
- The condensate pump is mandatory for scenarios where pipes are routed from the top or if it is required by the customer.

Table 7-2 Optional Parameters of NetCol5000-A035

Item	NetCol5000-A035H512D2E120E1	NetCol5000-A035H512D2E120E0	NetCol5000-A035H512D20020E1	NetCol5000-A035H512D20020E0
Max Current	32 A	32 A	26 A	26 A
Condensate pump	Yes	No	Yes	No
Reheat	Yes	Yes	No	No
Humidify	Yes	Yes	No	No
Reheating capacity	6.0 kW	6.0 kW	N/A	N/A
Humidifying capacity	3.0 kg/h	3.0 kg/h	N/A	N/A

Table 7-3 Optional Parameters of NetCol5000-A025

Item	NetCol5000-A025H512D2E120E1	NetCol5000-A025H512D2E120E0	NetCol5000-A025H512D20020E1	NetCol5000-A025H512D20020E0
Max Current	29 A	29 A	23 A	23 A
Condensate pump	Yes	No	Yes	No
Reheat	Yes	Yes	No	No
Humidify	Yes	Yes	No	No
Reheating capacity	6.0 kW	6.0 kW	N/A	N/A
Humidifying capacity	3.0 kg/h	3.0 kg/h	N/A	N/A

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A Acronyms and Abbreviations

C	
CFD	Computational Fluid Dynamics
CAN	Controller Area Network
D	
DC	Direct Current
E	
EC	Electronic Commutation
EMS	Element Management System
P	
PUE	Power Usage Effectiveness
R	
RCCB	Residual Current Circuit Breaker
T	
TFT	Thin Film Transistor
U	
USB	Universal Series Bus

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